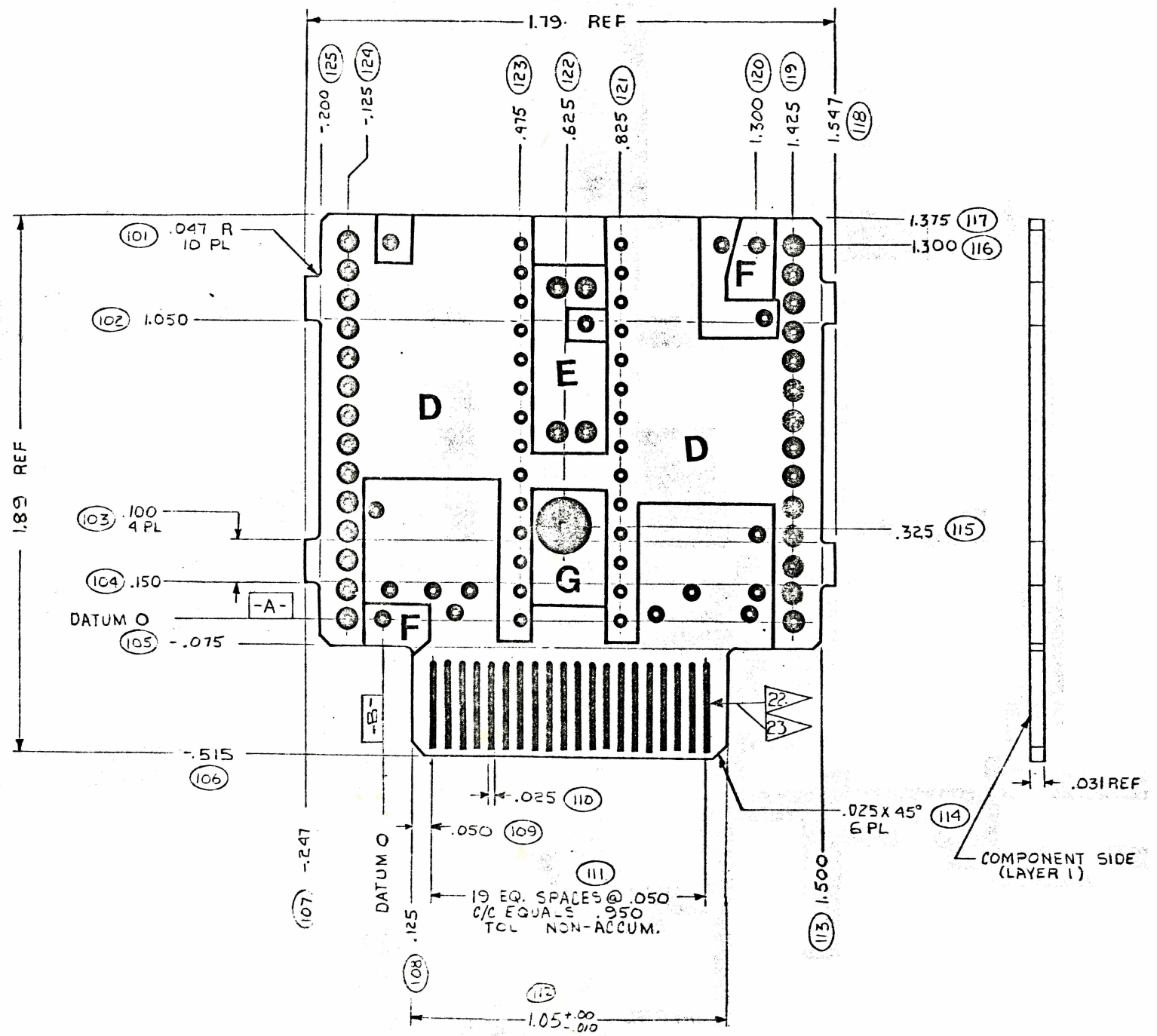


NOTES: UNLESS OTHERWISE SPECIFIED

- 01. EXTERNAL TOOLING HOLE DIMENSIONS:
- 02. MINIMUM ANNULAR RING .001 EXCEPT BREAK OUT PERMITTED ON TRIMMED PADS.
- 03. MAX. INTERNAL RADIUS $\pm .050$ MAX. EXTERNAL RADIUS $\pm .063$
- 04. NO DEBURR REQUIRED.
- 05. CRAZING AND DELAMINATION WITHIN A MAX. OF .030 BOARD PERIMETER SHALL BE ACCEPTABLE.
- 06. HOLE LOCATION $\text{M} \text{A} \text{B} \text{014} \text{S}$ (RFS). OR $\text{M} \text{A} \text{B} \text{010} \text{M}$ (MMC).
- 07. ALL HOLES NOT DIMENSIONED ARE ON .025 INCH GRID INCREMENTS IN RELATION TO DATUM O.
- 08. DECIMAL HOLE DIAMETERS AND HOLE TOLERANCES GOVERN HOLE SIZE. NUMBERS IN PARENTHESES ARE FOR REFERENCE ONLY.
- 09. FINISHED ARTWORK CONDUCTOR WIDTH AND SPACING TO BE $.012 \pm .004$.
- 10. BOARD WARP OR TWIST SHALL NOT EXCEED .020 INCH PER INCH LENGTHWISE AND SHALL NOT EXCEED .018 INCH PER INCH CROSSWISE.
- 11. NO CLEARANCE REQUIRED FROM CONDUCTOR TO EDGE OF BOARD AND SLOTS.
- 12. MATERIAL SHALL BE $\text{D}31$ THK NEMA GRADE FR-4 OR G-10 WITH ONE .02 COPPER BOTH SIDES.
- 13. PROCESSES: TIN LEAD 60/40 PLATE, .0003 THK MIN., PER QQ-5-571 "REFLOWED" BEFORE SOLDER MASK IS APPLIED.
- 14. SOLDER MASK SHALL BE SCREENED ON BOTH SIDES USING PC 401 OR APPROVED EQUIVALENT. COLOR TO BE GREEN.
- 15. SOLDER MASK IS PERMITTED TO BLEED ON PADS OF CONDUCTOR SIDE WHERE PADS ARE TRIMMED AND ON COMPONENT SIDE OF BOARD.
- 16. MARK PER ANSI Y32-16-1968 METHOD SILK SCREEN, HEIGHT PER ARTWORK PROVIDED, COLOR CONTRASTING (F100, METHOD 1, CLASS 1).
- 17. REGISTRATION MARKS TO BE USED FOR POSITIONING MARKING AT HOLES SHOWN.
- 18. THIS PWB IS AN UL RECOGNIZED COMPONENT AND, SUCH AS, MUST DISPLAY THE VENDORS MARK RECOGNIZED BY UL IN THE AREA OF THE PWB INDICATED.
- 19. SOLDER MASK ALLOWED TO BLEED A MAX. OF .005 ONTO THE PAD.
- 20. NO ANNULAR RING REQUIREMENTS ON OVAL PADS.
- 21. SOLDER MASK PERMITTED TO COVER TIN LEAD PLATED COPPER AREAS GREATER THAN .250 INCH.
- 22. ELECTROLESS NICKEL PLATE PER CL.1, CLASS B (F-28, METHOD 2) THICKNESS TO BE .002 MIN. OF ELECTROPLATE A (L0), STRESS NICKEL .0002 MIN. THK. FREE FROM VISIBLE BUSTERS, PITS, NODULES, CRACKS OR OTHER DEFECTS. IPC TAPE TEST SHOWS NO SEPARATION OF NICKEL FROM COPPER, NO COHESIVE FAILURE OR NO SEPARATION OF SUBSEQUENT TOP COAT.
- 23. ELECTROPLATE GOLD PER MIL-G-45204, CL. II OF F-34, CL. 2. .00005 MIN. THK. MIN. GOLD PLATING THICKNESS ON FINISHED PCB SHALL BE .00005. GOLD SHALL BE ADHERENT (IPC TAPE TEST), HAVE UNIFORM COVERAGE AND GOLD COLOR WITH NO EVIDENCE OF POROSITY.
- 24. ALL HOLES TO BE WITHIN 0.014 INCH TRUE POSITION TO DATUM O WHEN PINNED TO PLANE A AND PLANE B.
- 25. SOLDER MASK IS NOT ALLOWED TO COVER FEED-THRU HOLES.



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ECN 104619 S. ALLEN 9-28-82 DIM 14 WAS .150. DIM 13 WAS FOR 2 PL. DIM. 11 WAS FOR 4 PL. ADDED DIM. 16 & 17. ADDED ADDITIONAL BREAKOUT POINT FOR PANEL STRENGTH. SO INDICATED ON SHEET 3. DIM. IDENTIFIERS CORRECTED.	10/19/82 10/1/82	W. Allen S. Allen
B		ECN 105158 W. Allen 1-11-83 1) CHANGE BOARD OUTLINE 2) CHANGE PANEL OUTLINE 3) ALL LAYERS AFFECTED	1-12-83 1-14-83	D. R. Allen S. Allen
C		ECN 105760 K. Humphrey 1-27-83 CHG NOTE 12 FROM .031 TO 1 MM.	1-27-83	K. Humphrey S. Allen
D		ECN NO: 106219 Cheryl Vuc 3-28-83 1. BOARD OUTLINE IS CHANGED, AND CARD EDGE CONNECTOR EXTENDED. 2. PANEL OUTLINE IS CHANGED. 3. NOTES 22. AND 23. USE FOR CARD EDGE CONNECTOR ONLY.	3/23/83 3/23/83	Cheryl Vuc S. Allen
E		ECN 102771 W. Allen 4-27-83 CHANGE BOARD THICKNESS	4/1/83 5/3/83	W. Allen S. Allen

LTR	FINISHED HOLE DIA	REMARKS
G	.200 $\pm .004$ $\pm .002$	
F	.062 $\pm .002$	INTL. TOOLING
E	.046 $\pm .004$ $\pm .002$	
D	.039 $\pm .004$ $\pm .002$	
C	.031	UNLETTERED
B	.125 $\pm .004$ $\pm .002$	INTL. TOOLING
A	SHOP OPTION	EXTL. TOOLING
	UNSUPPORTED PLATED THRU	
	$\pm .004$ $\pm .001$	$\pm .007$ $\pm .003$

INVENTORY CONTROL NUMBER	THIS DRAWING	HOLE CONFIGURATION	DRILL DECK	LAYER 1 (COMP. SIDE)	LAYER 2 (COND. SIDE)	MARKING	CONDUCTOR SIDE	SOLDER MASK	COMPONENT SIDE	SOLDER MASK
-1-2-2-4-4	-A-E-C-D-E	-A-E-C-D-D		-A-E-C-D-D	-A-E-C-D-D		-A-E-G-D-D	-A-E-G-D-D	-A-E-C-D-D	-A-E-C-D-D

DIMENSION IDENTIFIERS	
LAST USED	NOT USED
220	126-200

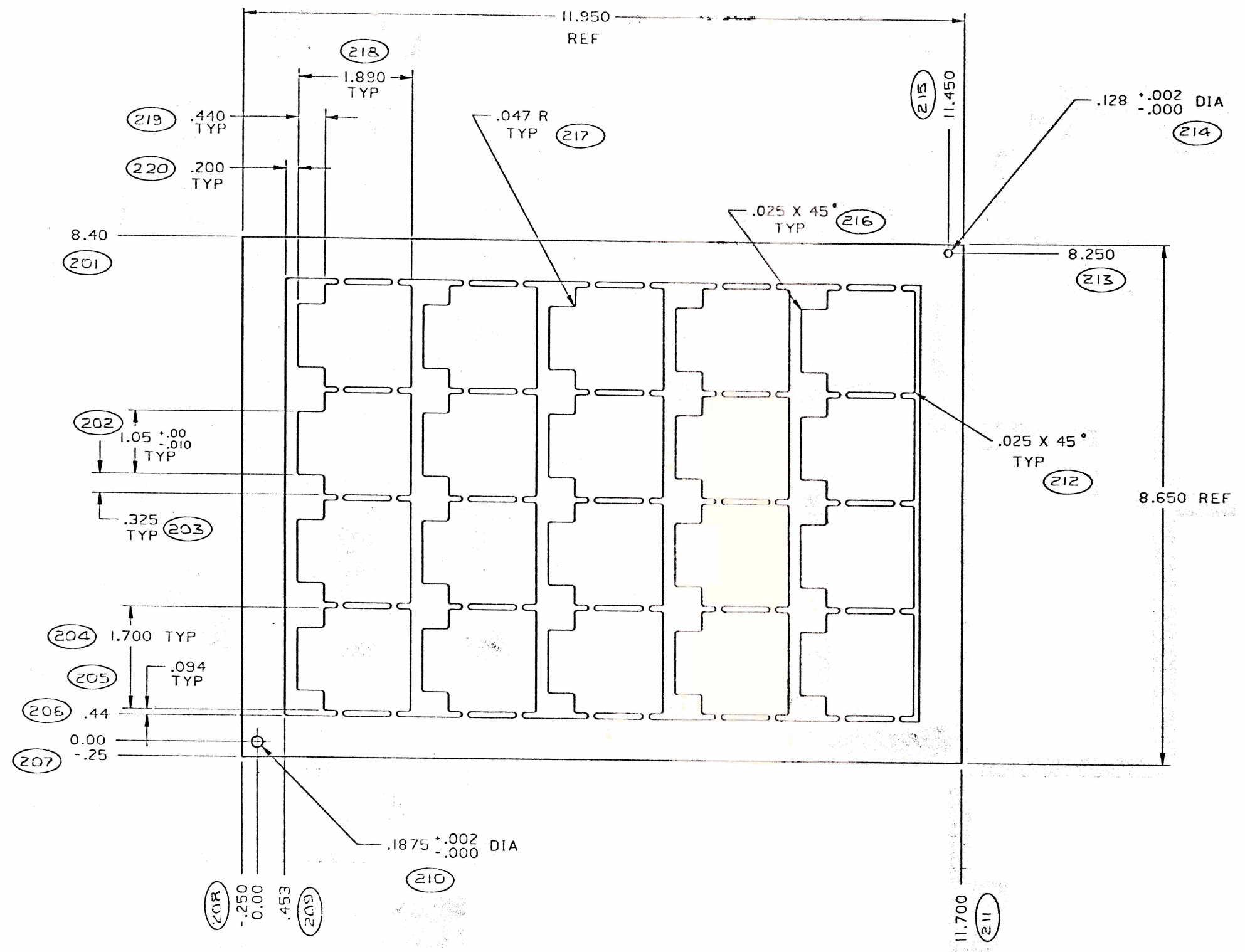
UNLESS OTHERWISE SPECIFIED
 • DIMENSIONS ARE IN INCHES
 • TOLERANCES
 ANGLES $\pm 5^\circ$
 3 PLACE DECIMALS $\pm .010$
 2 PLACE DECIMALS $\pm .02$
 • DIMENSIONING IN ACCORDANCE WITH ANSI Y14.5

DRWN	P. Allen	DATE	2-3-15-82
CHK	P. Allen	DATE	6-3-82
ELECT ENG			
TOOLING ENG			
MFG ENG			
PRODUCT ENG			
DESIGN ACTIVITY			

TEXAS INSTRUMENTS
 INCORPORATED
 CALCULATOR PRODUCTS DIVISION

**PRINTED WIRING BOARD,
 PRODUCT 477**

D 1044515 B A



DIMENSION IDENTIFICATION NUMBERS	
USED	NOT USED
201 - 220	